WHAT IS CLAIMED IS:

1. A light-emitting unit comprising:

a light-emitting device for emitting light with a wavelength range of from 360 nm to 550 nm; and

a fluorescent material made of Ca-Al-Si-O-N oxynitride activated with Eu^{2+};

wherein a part of light emitted from said light-emitting device is emitted outward after it is subjected to wavelength conversion by said fluorescent material.

2. A light-emitting unit according to claim 1, wherein said light-emitting device emits light with a wavelength range of from 450 nm to 550 nm, and wherein said part of said light with the converted wavelength is mixed with the other part of said light emitted from said light-emitting device, so that white light is emitted.

3. A light-emitting unit according to claim 1, wherein said fluorescent material is constituted by a powdery or granular material and is contained in a light-transmissible material.

4. A light-emitting unit according to claim 1, wherein said fluorescent material is constituted by a glassy material.

5. A light-emitting unit according to claim 1, wherein said light-emitting device is constituted by a group III nitride compound semiconductor light-emitting device.

6. A light-emitting unit according to claim 3, wherein the light-emitting device is mounted in a cup portion provided in a lead frame, and the cup portion is filled with the light-transmissible material containing the fluorescent material.

7. A light-emitting unit according to claim 3, wherein the light-emitting device is mounted in a cup portion provided in a lead frame, and a fluorescent layer made from the light-transmissible material containing the fluorescent material is provided on a surface of the light-emitting device.

8. A light-emitting unit according to claim 3, wherein the light-emitting device is mounted in a cup portion provided in a lead frame, and the light-emitting device and a part of the lead frame are covered with the light-transmissible material containing the fluorescent material.

9. A light-emitting unit according to claim 3, wherein the light-emitting device is mounted on a substrate, and a

fluorescent layer made from the light-transmissible material containing the fluorescent material is provided on a surface of the light-emitting device.

10. A light-emitting unit according to claim 3, wherein the light-emitting device is mounted on a substrate, and the light-emitting device is sealed with the light-transmissible material containing the fluorescent material.

11. A light-emitting unit according to claim 3, wherein the light-emitting device is mounted in a cup portion provided in a substrate, and the cup portion is filled with the light-transmissible material containing the fluorescent material.

12. A light-emitting unit according to claim 3, wherein the light-emitting device is mounted in a cup portion provided in a substrate, and a fluorescent layer made from the light-transmissible material containing the fluorescent material is provided on a surface of the light-emitting device.

13. A light-emitting unit according to claim 3, wherein a fluorescent layer made from the light-transmissible material containing the fluorescent material is provided on a substrate

surface of the light-emitting device.

14. A light-emitting unit according to claim 13, wherein a fluorescent layer made from the light-transmissible material containing the fluorescent material is also provided on a side surface of the light-emitting device.

15. A light-emitting unit according to claim 3, wherein a reflection plate is provided in a light-emitting direction of the light-emitting device.

16. A light-emitting unit according to claim 15, wherein a fluorescent layer made from the light-transmissible material containing the fluorescent material is provided on a surface of the reflection plate opposite to the light-emitting device.

17. A light-emitting unit according to claim 3, wherein a fluorescent layer made from the light-transmissible material containing the fluorescent material is provided in a light-emitting direction of the light-emitting device.

18. A light-emitting unit according to claim 17, further comprising a light guide having a light introduction

surface and a light-emitting surface, wherein

the light-emitting device is disposed so as to face the light introduction surface of the light guide, and

the fluorescent layer is disposed between the semiconductor light-emitting device and the light introduction surface of the light guide.

19. A light-emitting unit according to claim 17, further comprising a light guide having a light introduction surface and a light-emitting surface, wherein

the light-emitting device is disposed so as to face the light introduction surface of the light guide, and

the fluorescent layer is disposed on the light-emitting surface side of the light guide.

20. A light-emitting unit according to claim 19, further comprising a layer of a light-transmissible material disposed between the light guide and the fluorescent layer.

21. A light-emitting unit according to claim 4, wherein a fluorescent layer made from the fluorescent material is provided on a substrate surface of the light-emitting device.

22. A light-emitting unit according to 21, wherein a

fluorescent layer made from the fluorescent material is also provided on a side surface of the light-emitting device.

23. A light-emitting unit according to claim 4, wherein a reflection plate is provided in a light-emitting direction of the light-emitting device.

24. A light-emitting unit according to claim 23, wherein the reflection plate is made from the fluorescent material, and a surface of the reflection plate opposite to a surface facing the light-emitting device is planished as a mirror surface.

25. A light-emitting unit according to claim 4, wherein a fluorescent layer made from the fluorescent material is provided in a light-emitting direction of the light-emitting device.

26. A light-emitting unit according to clam 25, further comprising a light guide having a light introduction surface and a light-emitting surface, wherein

the light-emitting device is disposed so as to face the light introduction surface of the light guide, and

the fluorescent layer is disposed between the

semiconductor light-emitting device and the light introduction surface of the light guide.

27. A light-emitting unit according to claim 25, further comprising a light guide having a light introduction surface and a light-emitting surface, wherein

the light-emitting device is disposed so as to face the light introduction surface of the light guide, and

the fluorescent layer is disposed on the light-emitting surface side of the light guide.

28. A light-emitting unit according to claim 27, further comprising a layer of a light-transmissible material disposed between the light guide and the fluorescent layer.

29. A light-emitting method comprising steps of:

irradiating a fluorescent material made of Ca-Al-Si-O-N oxynitride activated with Eu^{2+} with light emitted from a light-emitting device with an emission wavelength range of from 360 nm to 550 nm to thereby convert the wavelength of a part of said light; and

mixing said part of said light with the converted wavelength with the other part of said light emitted from said light-emitting device to thereby emit resultant light;

wherein said light-emitting device is turned on intermittently.

30. A light-emitting method according to claim 29, wherein the time when said light-emitting device is turned on is adjusted to thereby adjust the color of light emitted from said light-emitting unit.

31. A light-emitting method according to claim 30, wherein said light-emitting device emits light with an emission wavelength range of from 480 nm to 550 nm, and wherein said color of said emitted light is white.

32. A light-emitting method according to claim 29, wherein said light-emitting device is constituted by a group III nitride compound semiconductor light-emitting device.